

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for correcting an XML electronic document, the XML electronic document having a structure, the method comprising:
identifying a validation error in the XML electronic document structure, the validation error being ~~a structural~~ an aspect of the XML electronic document structure that fails to conform to rules of an XML document type definition or an XML schema, the rules being associated with the XML electronic document, the validation error being of a particular kind;
selecting a suggestion template from among multiple suggestion templates according to the particular kind of the validation error, and using the selected suggestion template to suggest to a user suggested corrections that are predefined in the template for the particular kind of validation error, the selected suggestion template including logic necessary ~~to implement the suggested corrections to the document to correct the identified non-conforming structural aspect;~~
for modifying the XML electronic document structure in conformance with the rules of the XML document type definition or the XML schema;
receiving an input selecting one of the suggested corrections and
using the logic in the selected suggestion template to apply the correction selected by the input to the XML electronic document.
2. (Currently Amended) The method of claim 1, wherein:
identifying a ~~structural~~ an aspect of the XML electronic document structure includes identifying a missing, extraneous, misplaced, or mismatched structural aspect of the XML electronic document.

3. (Currently Amended) The method of claim 1, wherein modifying the XML electronic document structure comprises retagging an element in the XML electronic document structure. ~~the rules include one or more rules stored separately from and referred to in the XML electronic document.~~

4. (Currently Amended) The method of claim 1, wherein modifying the XML electronic document structure comprises moving an element from a current location to a new location in the XML electronic document structure.

~~the rules include one or more rules stored in the XML electronic document.~~

5-7. (Cancelled)

8. (Currently Amended) The method of claim 1, wherein identifying a validation error comprises:

~~the rules include one or more rules defined in an XML DTD.~~

building a deterministic finite automaton from a content model defined in a document type definition of the XML electronic document; and

identifying a validation error using the deterministic finite automaton.

9. (Previously Presented) The method of claim 1, wherein:
suggesting changes to the user includes suggesting a plurality of changes to the user in an order determined by predefined user preferences, the predefined user preferences including ranking particular changes higher than other changes.

10. (Cancelled)

11. (Original) The method of claim 1, wherein suggesting one or more changes to a user comprises:

requesting information from a user about the identified structural aspect; and

based on input received in response to the request, suggesting to the user one or more changes that would correct the identified structural aspect.

12. (Currently Amended) The method of claim 1, wherein:

identifying ~~a structural~~an aspect of the XML electronic document structure that fails to conform to rules associated with the XML electronic document includes identifying one or more structural aspects of the XML electronic document that fail to conform to rules associated with the document;

and

applying the correction selected by the input includes applying the correction selected by the input to the XML electronic document, thereby bringing the entire XML electronic document into conformance with the rules.

13. (Currently Amended) A computer-implemented method for validating and correcting an XML electronic document, the XML electronic document having a structure, the method comprising:

recursively validating a parent element of the ~~markup language document~~ XML document structure by:

validating attributes of the parent element,

validating a content model of the parent element, and

recursively validating one or more children of the parent element;

identifying a validation error in the XML electronic document, the validation error being ~~a structural~~an aspect of the XML electronic document structure that fails to conform to one or more rules of an XML document type definition or an XML schema, the rules being associated with the XML electronic document, the validation error being of a particular kind;

selecting a suggestion template from among multiple suggestion templates according to the particular kind of the validation error, and using the selected suggestion template to suggest to a user suggested corrections that are predefined in the template for the particular kind of validation error, the selected suggestion template including logic necessary ~~to implement the suggested corrections to the document to correct the identified non-conforming structural aspect;~~
for modifying the XML electronic document structure in conformance with the rules of the XML document type definition or the XML schema;

receiving an input selecting one of the suggested corrections; and
using the logic in the selected suggestion template to apply the correction selected by the input to the XML electronic document.

14. (Cancelled)

15. (Previously presented) The method of claim 13, further comprising:
checking a root element against a DOCTYPE root tag specified in the rules associated with the XML document; and
allowing a user to retag the root element using the DOCTYPE root tag.

16. (Currently Amended) A computer program product tangibly embodied in a machine-readable ~~medium~~ storage device for correcting an XML electronic document, the XML electronic document having a structure, the product comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:

identifying a validation error in the XML electronic document structure, the validation error being ~~a structural~~ an aspect of the XML electronic document structure that fails to conform to rules of an XML document type definition or an XML schema, the rules being associated with the XML electronic document, the validation error being of a particular kind;

selecting a suggestion template from among multiple suggestion templates according to the particular kind of the validation error, and using the selected suggestion template to suggest to a user suggested corrections that are predefined in the template for the particular kind of validation error, the selected suggestion template including logic necessary ~~to implement the suggested corrections to the document to correct the identified non-conforming structural aspect~~ for modifying the XML electronic document structure in conformance with the rules of the XML document type definition or the XML schema;

receiving an input selecting one of the suggested corrections; and
using the logic in the selected suggestion template to apply the correction selected by the input to the XML electronic document.

17. (Currently Amended) The computer program product of claim 16, wherein:
identifying a structural aspect of the XML electronic document structure includes
identifying a missing, extraneous, misplaced, or mismatched structural aspect of the XML
electronic document.

18. (Currently Amended) The computer program product of claim 16, wherein
modifying the XML electronic document structure comprises retagging an element in the XML
electronic document structure.:

~~the rules include one or more rules stored separately from and referred to in the XML
electronic document.~~

19. (Currently Amended) The computer program product of claim 16, wherein:
~~the rules include one or more rules stored in the XML electronic document.~~
modifying the XML electronic document structure comprises moving an element from a
current location to a new location in the XML electronic document structure.

20-22. (Cancelled)

23. (Currently Amended) The computer program product of claim 16, wherein
identifying a validation error comprises:
~~the rules include one or more rules defined in an XML DTD.~~
building a deterministic finite automaton from a content model defined in a document
type definition of the XML electronic document; and
identifying a validation error using the deterministic finite automaton.

24. (Previously Presented) The computer program product of claim 16, wherein:
suggesting changes to the user includes suggesting a plurality of changes to the user in an
order determined by predefined user preferences, the predefined user preferences including
ranking particular changes higher than other changes.

25. (Cancelled)

26. (Original) The computer program product of claim 16, wherein suggesting one or more changes to a user comprises:

requesting information from a user about the identified structural aspect; and
based on input received in response to the request, suggesting to the user one or more changes that would correct the identified structural aspect.

27. (Currently Amended) The computer program product of claim 16, wherein:
identifying ~~a structural~~ an aspect of the XML electronic document structure that fails to conform to rules associated with the XML electronic document includes identifying one or more ~~structural~~ aspects of the XML electronic document structure that fail to conform to rules associated with the document; and

applying the correction selected by the input includes applying the correction selected by the input to the XML electronic document, thereby bringing the entire XML electronic document structure into conformance with the rules.

28. (Currently Amended)) A computer program product tangibly embodied in a machine-readable ~~medium-storage device~~ for validating and correcting an XML electronic document, the XML document having a structure, the product comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:

recursively validating a parent element of the ~~markup language document~~ XML document structure by:

validating attributes of the parent element,
validating a content model of the parent element, and
recursively validating one or more children of the parent element;

identifying a validation error in the XML electronic document, the validation error being ~~a structural~~ an aspect of the XML electronic document structure that fails to conform to one or more rules of an XML document type definition or an XML schema, the rules being associated with the XML electronic document, the validation error being of a particular kind;

selecting a suggestion template from among multiple suggestion templates according to

the particular kind of the validation error, and using the selected suggestion template to suggest to a user suggested corrections that are predefined in the template for the particular kind of validation error, the selected suggestion template including logic necessary ~~to implement the suggested corrections to the document to correct the identified non-conforming structural aspect~~ for modifying the XML electronic document structure in conformance with the rules of the XML document type definition or the XML schema;

receiving input selecting one of the suggested corrections ; and
using the logic in the selected suggestion template to apply the correction selected by the input to the XML electronic document.

29. (Cancelled)

30. (Previously presented) The computer program product of claim 28, further comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:

checking a root element against a DOCTYPE root tag specified in the rules associated with the XML document; and

allowing a user to retag the root element using the DOCTYPE root tag.

31-32. (Cancelled)

33. (Currently Amended) A system, comprising:

a device hosting an electronic document application; and

a processor configured to perform operations comprising:

identifying a validation error in the XML electronic document, the XML electronic document having a structure, the validation error being ~~a structural~~ an aspect of the XML electronic document structure that fails to conform to rules of an XML document type definition or an XML schema, the rules being associated with the XML electronic document, the validation error being of a particular kind;

selecting a suggestion template from among multiple suggestion templates according to

the particular kind of the validation error, and using the selected suggestion template to suggest to a user suggested corrections that are predefined in the template for the particular kind of validation error, the selected suggestion template including logic necessary ~~to implement the suggested corrections to the document to correct the identified non-conforming structural aspect~~ for modifying the XML electronic document structure in conformance with the rules of the XML document type definition or the XML schema;

receiving an input selecting one of the suggested corrections; and
using the logic in the selected suggestion template to apply the correction selected by the input to the XML electronic document.

34. (Currently Amended) The system of claim 33, wherein:
identifying ~~a structural~~ an aspect of the XML electronic document structure includes identifying a missing, extraneous, misplaced, or mismatched structural aspect of the XML electronic document structure.

35. (Currently Amended) The system of claim 33, wherein modifying the XML electronic document structure comprises retagging an element in the XML electronic document structure.

~~the rules include one or more rules stored separately from and referred to in the XML electronic document.~~

36. (Currently Amended) The system of claim 33, wherein:
~~the rules include one or more rules stored in the XML electronic document.~~
modifying the XML electronic document structure comprises moving an element from a current location to a new location in the XML electronic document structure.

37. (Previously Presented) The system of claim 33, wherein:
suggesting changes to the user includes suggesting a plurality of changes to the user in an order determined by predefined user preferences, the predefined user preferences including ranking particular changes higher than other changes.

38. (Previously Presented) The method of claim 1, wherein:
the template is implemented as a list of commands.
39. (Cancelled)
40. (Previously Presented) The method of claim 13, wherein:
the template is implemented as a list of commands.
41. (Previously Presented) The computer program product of claim 16, wherein:
the template is implemented as a list of commands.
42. (Cancelled)
43. (Previously Presented) The computer program product of claim 28, wherein:
the template is implemented as a list of commands.
44. (Previously Presented) The system of claim 33, wherein:
the template is implemented as a list of commands.
45. (New) The method of claim 13, wherein modifying the XML electronic
document structure comprises retagging an element in the XML electronic document structure.
46. (New) The method of claim 13, wherein modifying the XML electronic
document structure comprises moving an element from a current location to a new location in the
XML electronic document structure.
47. (New) The method of claim 13, wherein identifying a validation error comprises:
building a deterministic finite automaton from a content model defined in a document
type definition of the XML electronic document; and
identifying a validation error using the deterministic finite automaton.
48. (New) The computer program product of claim 28, wherein identifying a
validation error comprises:

building a deterministic finite automaton from a content model defined in a document type definition of the XML electronic document; and
identifying a validation error using the deterministic finite automaton.

49. (New) The computer program product of claim 28, wherein modifying the XML electronic document structure comprises retagging an element in the XML electronic document structure.

50. (New) The computer program product of claim 28, wherein modifying the XML electronic document structure comprises moving an element from a current location to a new location in the XML electronic document structure.

51. (New) The system of claim 33, wherein identifying a validation error comprise:
building a deterministic finite automaton from a content model defined in a document type definition of the XML electronic document; and
identifying a validation error using the deterministic finite automaton.